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The Underpricing of M/A-COM Technology Solutions, Inc. at the IPO that leads to Long-Term Underperformance

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Abstract

The underpricing of initial public offerings leads to long-term underperformance. There are many reasons why this may happen, but for this study, the focus is on the lower offering price investors are granted for taking on the high risk of investing in an initial public offering as well as an investment bank keeping a good reputation. The stock return for M/A-Com Technology Solutions Holding, Inc. on the first day shows the underpricing. Underperformance follows after the initial public offering date for M/A-COM Technology Solutions, Inc. This is shown by the comparison of MTSI to the MTSI Index as well as by looking at the target price calculated from the comparable company analysis.

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1. Introduction

Is there an obvious reason why a company goes from being private to public? Rosen, Smart, and Zutter (2005) argue that it is most likely because of growth potential. They also suggest that it may be a part of the business life cycle (Rosen, Smart, and Zutter, 2005). Pagano, Panetta, and Zingales (1995) suggest that "when investors have imperfect information, it is low-quality companies which have the greatest incentive to go public, which affects adversely the IPO price (pp. 5)." This study focuses on the high potential of IPO underpricing. Why has it been observed that underwriters from investment banks give an issuing price that seems to be well below the closing value on the first trading day? Does the underpricing of the security have any effect on the long-term performance of the security?

In this paper, I investigate the underpricing of M/A-COM Technology Solutions Inc. (MTSI) at the initial public offering and subsequent underperformance for the following year following the issue date. I look at stock returns for one year for MTSI compared to a relative benchmark index to value the performance of the post-IPO company. The returns are calculated on a daily basis. Descriptive statistics for returns provides information on performance of MTSI and the benchmark index. The benchmark index is developed using MTSI's key competitors highlighted in the prospectus. An analysis on abnormal return from investing in MTSI over the sample period is also done. The development of a target stock price using a comparable company analysis also gives insight to the hypothesis. My model is calculated approximately one year after IPO date to show the relation of the actual stock price to the calculated target price.

The data for stock returns show that the stock price for MTSI appreciates just over 8% the first day of trading, suggesting underpricing. Thereafter, the day-to-day returns for MTSI are

well below this amount. The average return for the sample period is -0.005%, suggesting that the stock price underperforms compared to its first day return. MTSI also underperforms the MTSI Index daily average return of -0.003%. The target price for MTSI is $19.79. Since the stock price on March 15, 2013 is $16.27 at its close, the stock is trading fairly close to its projected target price. All-in-all, a participating investor in the stock offering lost money up to this point.

This research and experiment contributes to the body of knowledge by giving insight into the theories that suggest why underpricing occurs among stock offerings. Because it is hard to prove any one theory, this study assumes that the underpricing serves as a risk premium for the investor. The results of the experiment also hint towards short selling an IPO that is apparently underpriced. Edwards and Hanley (2010) suggest that the use of "short selling is integral in the aftermarket of IPOs and is higher in IPOs with greater underpricing (pp.2)." The data in the results suggests that the average returns will be much lower over time when comparing it to the first trading day. Therefore, developing a short selling strategy could be a way to make money. For example, by looking at the descriptive statistics on holding period returns in Table 2, there are negative average returns for the sample time period. If you initiate a short position on MTSI, you will have a greater chance of making a profit unlike going long. Keep in mind however that there are restrictions on short selling IPOs immediately after they hit the market. Short selling can lead to more volatile price movements. Many brokers also do not have the inventory to make short selling an option.

Section 2 of this paper discusses possible reasons for underpricing and long-term underperformance of stocks. Section 3 shows the selection of MTSI, the comparable companies, the industry in which MTSI is a part of, and the development of the analysis. Section 4 lays out

the empirical data concerning stock returns and the target price of MTSI. Lastly, section 5 gives a conclusion on the results from the experiment in regards to underpricing and long-term underperformance for MTSI. This section also highlights potential areas of further research.

2. Literature Review and Hypothesis Development

There are many different views that support underpricing of IPOs. According to Fabrizio and Lorenzo (2001), it definitely happens because it is a premium for investors to accept the offer so they are compensated for taking on more risk with respect to investing in a newly public company. In addition, Ritter and Welch (2002) point out that when there is high IPO activity, there is a chance of higher underpricing due to the underwriters' supporting companies that are going public when valuations are much higher than one expects. They also suggest another theory that provides insight known as the lemons problem. This states that issuing companies with below average quality with respect to earnings and growth potential should accept the average price that the underwriting company gives. To expand on this, they also explain that issuing companies that have above average prospects sometimes want to use a price that is below what the market thinks. This stops the below average firms from using the lower issuing price because they cannot compete in a market with firms that have better profitability, growth, and liquidity. MTSI highlights key things in the prospectus that appeal to the uninformed investor. The uninformed investor is the person who only knows public knowledge about a company.

Investment banks are sometimes accused of leaving money on the table when there appears to be significant underpricing. Because of this, the issuing company is shorted of funds that would otherwise be used for business purposes. Is it the reputation of their firm that investment banks are worried about? MTSI has several key underwriters in the issuance of its stock. Barclays Capital and JPMorgan are the primary underwriters highlighted in the

prospectus. These underwriters have taken many companies public in the past. Both of these firms have reputations to keep because of their size and investment banking revenue. There is definitely a threshold that determines if the proposed issuing price is too low or high, and this most likely depends on current market conditions.

Potential long-term underperformance of the stock could be the result of several factors. IPOs may underperform because investors eventually learn about the issuing company and its long-term prospects (Bachmann, 2004). At first, investors only have access to information that is available to the public and do not know things insiders including initial shareholders know. Because of this information, the uninformed investor might invest in the company due to media stories about earnings growth above industry, etc. This might first sound like a potential reason to invest in a company because higher earnings expectations lead to a higher stock price. However, these investors eventually learn that the higher growth rate is dependent on the improvement of the American economy. Even though this is a hypothetical situation, it is still a valid example because the semiconductor industry in which MTSI is a part of is positively correlated with an expanding economy (Zino, 2011).

The behavioral mechanism of overconfidence can explain the long term underperformance of stocks. If one is overconfident in his/her ability to pick good stocks from bad stocks, that person believes that his/her ability to pick winning stocks from losing stocks is greater than anyone else. Because of overconfidence, managers of issuing firms bid the stock price up by overinvesting in the company, which has the potential to drive down the stock price (Ritter and Welch, 2002). Even though executive management as well as members of the MTSI board own over 50% of the shares according to information from the Bloomberg database there is no way to prove that their intention is to bid up the stock price for their own good. Legal

issues arise when significant trading activity from executive management is occurring. After looking at public information on trading activity, there has not been significant buying or selling of MTSI by executive management which in turn could artificially inflate the price.

This paper focuses on the fact that underpricing occurs because investors need compensation for the risk of investing in an initial public offering. If investors believe that the price is too high, there will be much less trading of a newly issued security. This can be detrimental to the stock offering of a company. One of the goals of a stock offering is to obtain more funds so a company can continue to grow and enter its next step of the business life cycle as Rosen, Smart, and Zutter (2005) argue. If the price that the lead underwriter projects is too high in both the uniformed investor's view as well as the informed investor's view, the offering will fail because none of the shares will be placed in the public's hands.

Based on the research above, I am hypothesizing that MTSI is underpriced at the initial public offering date and follows a path of long-term underperformance. It is vital to understand the literature behind underpricing and long-term underperformance. Also, MTSI and the industry it operates in must be understood well enough for making valid conclusions.

3. Sample Selection, Methodology, and Study Design

The start of the experiment is March 15, 2012 and goes to March 15, 2013. This is the start date and end date for the analysis because the company begins trading its stock publicly on March 15, 2012. The end date of the experiment serves as the final day for statistics compiled for an analysis purpose. March 15, 2013 is the day that the comparable company analysis is done on MTSI. This date is adequate in gaining insight on the performance of the stock since its IPO date. Also, this end date falls on a Friday which is the last day of trading for the week.

In order to understand the meaning of the variable definitions which were used primarily in the comparable company analysis refer to Table 1: Variable Definitions below. By looking at various financial services providers such as the Bloomberg database or Morningstar Investment Research Center, one can find the necessary information to calculate or find the various metrics. For example, to get the EBITDA per share, one must divide the trailing twelve month EBITDA by the number of shares outstanding. All of the variables in this table are fairly simple to understand. Some of them are very powerful in valuing MTSI.

Table 1: Variable Definitions

Variable	Definition
IPO	The abbreviation for initial public offering.
Ticker	The 3 to 4 letter acronym that represents the company in this analysis.
Firm	The name of a company used in the comparable company analysis.
MTSI	M/A-Com Technology Solutions, Inc., the issuing company's ticker.
EV	The enterprise value of a company, which is the market capitalization along with debt, minority interest, and any preferred shares of stock. Make sure cash and cash equivalents are left out of the calculation.
EBITDA	This is earnings before interest, taxes, depreciation, and amortization.
EV/EBITDA	The valuation multiple used in part to calculate the intrinsic value of MTSI.
EBITDA per share	The trailing twelve month EBITDA divided by the current shares outstanding.
Shares Outstanding	The current number of shares of a stock in the market measured in millions.
Industry Average	The average value of certain statistics in the comparable companies table.
Target Price	Estimated value of MTSI calculated using the comparable company analysis.

Measuring the performance of MTSI for a full year can be done various ways. One way to do this is by comparing the performance of MTSI to a benchmark index that is composed of similar, comparable companies. I developed a benchmark index consisting of the core competitors of MTSI highlighted in the prospectus. This index has been named the MTSI Index. An analysis looking at returns for both MTSI and the index will give quantitative information on performance. MTSI is a part of the index calculation. Key statistics will be calculated for the

index, which will give more evidence for the study. Since this analysis is not done until March 15, 2013, performance of MTSI will not be evaluated until this date; however, the underpricing of MTSI can easily be calculated based off of the first day of trading.

In this experiment, the model used is the comparable company analysis. For this project a sample firm is selected. In order to select a firm and since this experiment focuses on an initial public offering, exploring the Bloomberg database and searching for upcoming offerings is an easy way to find a company. Upcoming offerings can also be found on various services that are provided on the Internet. There are three factors to consider when searching upcoming IPOS. First, the price ranges of the IPO's and numbers of shares are taken into account among the firms in the database. Second, looking at the investment banks that are in charge of the underwriting is necessary in getting a preliminary idea if the company going public has sufficient goals, drivers, and funds. If highly reputable investment banks are involved in the underwriting process, then this is generally a good sign. This may indicate that the issuing firm wants the experienced underwriters in deeming an appropriate value for them as they are being taken to the capital market. Third, the primary industry for each company on the database is looked at. Looking at an industry report under the Standard & Poor's NetAdvantage database gives a clear picture of the current environment of the industry, trends for the industry, and important metrics to look at for each industry. When taking all of these factors into consideration in looking at the upcoming initial public offerings, M/A-COM Technology Solutions, Inc. (MTSI) is a company that hopefully provides evidence toward the hypothesis. Also, the timing of the IPO date is also appropriate for the start of this experiment compared to others.

With regards to MTSI, it is important to have an in-depth look at the prospectus to analyze the potential benefits of investing in the company. The prospectus explains the

competitive advantage that MTSI seeks by having a diversified product line, "fab-lite" manufacturing model, and over 155 products in development (Securities and Exchange Commission, 2012). The prospectus also outlines the product life for many of the products. They reach up to 10 years, which is outstanding when you take into consideration that majority of the products are sensors and chips that are in use every day for various functions.

The "fab-lite" manufacturing model allows MTSI to cut down on high capital costs because they depend only on one plant in developing their different products, which is in Lowell, Massachusetts (Securities and Exchange Commission 2012). This is where the company has its headquarters. However, in periods of high demand among the industry and market, MTSI gets some more capacity from foundries that are outside of the company which is highlighted in the prospectus filed to the Securities and Exchange Commission. This allows them to take advantage of the extra demand and increase revenues further.

There are 25 direct customers and distributors that use MTSI as a key supplier for chips and sensors (Securities and Exchange Commission, 2012). These customers are the driving force for revenue for this company. The prospectus also highlights key customers such as Nokia Corporation, Samsung, and Ford that are important for MTSI, and in 2011, these 25 companies made up about 56.8% of the revenue.

According to Frost & Sullivan, the Networks, Aerospace and Defense, and Multi-market segments are growing from $33.2 billion in 2010 to $83.1 billion in 2017 (Securities and Exchange Commission, 2012). Also, according to the prospectus, Internet usage is quadrupling most likely from 2010 to 2015. Concerning the Aerospace and Defense market that MTSI is a part of, unmanned aerial vehicles are becoming increasingly popular due to the fact that more and more wars and missions are involving fewer humans and more innovative technology. This

is because of the increased effort to reduce fatalities from war along with more peacekeeping missions, according to the Teal Group (Securities and Exchange Commission, 2012). Another statistic pointed out in the prospectus is that more and more automobiles are having increases in the semiconductor content per automobile. From 2011 to 2014, this number is most likely increasing from $350 to $425 per car.

In order to discuss the semiconductor industry as a whole, the Standard and Poor's NetAdvantage database is the chosen source of information. This source provides an overview of the industry, past trends in the industry, and important things to look at when valuing the industry. The industry was researched in March of 2012.

Several things can be attributed to weak semiconductor industry sales in 2011. One key event was the tsunami in Japan, which had a direct effect on production facilities and the supply chain for this industry (Zino, 2011). This catastrophic event destroyed some plants, leading to a decrease in supply. Also, because of this event and unsure market conditions, Standard & Poor's analyst Angelo Zino explained that semiconductor companies raised their inventory levels because of the fear of not having sufficient inventory to meet future market demand. When the actual market demand was not as high as anticipated in 2011, Angelo said the excess inventory brought high carrying costs along with a decrease in sales. The personal computer industry, which has been a huge driver of revenue for this industry for quite some time, had lower sales than expected in 2011. According to Angelo Zino, this can be explained by the increase of usage with smartphones along with the increased popularity with tablets such as the iPad. The Standard and Poor's NetAdvantage is expecting personal computer sales to go back to normal levels in 2012 because of the need for major corporations to replace old software. Along with

this, Angelo Zino anticipates that smart phones, tablets, and the automobile market will see double-digit growth.

One growth forecast for the semiconductor industry for 2012 is 7%, according to Angelo Zino from S&P NetAdvantage, which is well above the 2011 rate of 3%. Growth in this industry is hard to predict due to processes such as recognition of revenue only when products are shipped rather than when orders are placed. If this growth does not occur, it will be important for firms to manage their costs as efficiently as possible to maintain margins.

After choosing the company, the process of constructing the valuation for the comparable company analysis will begin. To determine a possible comparable company for MTSI takes a lot of research and in-depth analysis of qualitative and quantitative information. Since the semiconductor industry has many firms and potential markets, it is necessary to observe the customers or end users of the products made by these firms. For example, the prospectus says that MTSI has three primary markets and customers such as Ford and Motorola Solutions, Inc. (Securities and Exchange Commission, 2012). Doing some research into other companies in the industry can give evidence of similar end customers. The Bloomberg database gives a list of possible competitors for a public company. By analyzing the information, it is possible to find the end customers for each company on the list. A list of 6 companies, along with MTSI is chosen as the sample size for the valuation. The prospectus highlights these companies, which MTSI sees as its main competitors. Because of this, it is important to use these exact companies in the analysis. The key competitors in the prospectus make it easier in deeming the list of comparable companies.

In order to determine the appropriate financial information, the enterprise value to EBITDA multiple is the measure of focus with regards to the comparable company analysis.

The enterprise value of a company represents the market capitalization of a company along with debt, minority interest, and any preferred shares the company has outstanding. The amount of cash and cash equivalents must be subtracted from this number to reach the final enterprise value. EBITDA simply represents the earnings of a company before interest, taxes, depreciation and amortization. Once you have both the enterprise value and EBITDA, the multiple is easily calculated as the ratio of the two. This is one of the most common ratios used in evaluating a firm. This ratio shows the value of a company compared to competitors. A lower ratio typically means that a company is undervalued.

The enterprise value to EBITDA multiple must be found not only for MTSI but also for its competitors'. An industry average of this multiple must be found in the next step of the evaluation. The EBITDA of MTSI must be divided by current shares outstanding. This is a similar proxy to earnings per share. Since MTSI has had negative earnings per share, EBITDA is used. The EBITDA per share number that is calculated is then multiplied by the industry average enterprise value to EBITDA multiple. At last, the target price for MTSI has been found. Now this value is compared to the current trading price.

Along with the calculation of the target price, the holding period return for MTSI, calculated on a daily basis, is done, providing guidance on daily stock returns. This calculation reveals whether the stock price appreciates or depreciates on any particular day. It also provides information on performance of MTSI after the first day of trading. Descriptive statistics are calculated for the stock returns based off the holding period returns of MTSI. The descriptive statistics that are calculated are shown in Table 2: Descriptive Statistics for MTSI. By using a function in Microsoft Excel, these statistics can easily be calculated. These particular measures give further insight on the entire year worth of holding period returns. An index that has MTSI's

key competitors was constructed. This index, known as the MTSI Index, is made so MTSI can be directly compared to its competitors highlighted in the prospectus. MTSI was included in formation of the index. The return calculations for both MTSI and the MTSI Index show if MTSI is underpriced and whether it underperforms after the first day of trading. The yearly holding period return for both MTSI and the MTSI Index are also found. Based off of this, abnormal return is calculated giving further insight on the performance of MTSI.

4. Empirical Results

Table 2: Descriptive Statistics of Daily Returns for MTSI illustrates the descriptive statistics for MTSI. These statistics are based on calculating the returns from the change in stock price, day-to-day, for the entire experiment. Since MTSI does not currently pay dividends, this calculation does not have to account for D shown in equation 1. P_1 represents the current day closing price while P_0 represents the previous day closing price. The calculation for the holding period return is as follows:

$$\text{Holding Period Return (HPR)} = \frac{(P_1 - P_0 + D)}{P_0} \quad (1)$$

These statistics are calculated from a year of stock returns. The time period is March 15, 2012 to March 15, 2013. The stock prices were found on *yahoo. finance* and the calculations were done in Microsoft Excel. Key things to look at in this table are the mean, standard deviation, minimum, and maximum values. These statistics provide explanations towards the hypothesis.

Table 2: Descriptive Statistics of Daily Returns for MTSI

MTSI	
Mean	-0.005%
Median	0.000%
Standard Deviation	3.364%
Variance	0.113%
Kurtosis	8.59
Skewness	-1.41
Range	29.567%
Minimum	-20.826%
Maximum	8.741%
25^{th} quartile	-1.519%
75^{th} quartile	1.638%
1^{st} day return	8.160%

The average return for the time period of the experiment is -0.005%. The maximum return is 8.741% based on equation 1. The return of MTSI on the first day is 8.160%. This is the second highest return of the sample size of 251 which accounts for the entire year of open market days. There is significance in this number with regards to the hypothesis. This number provides support for the hypothesis in that the stock price appreciates substantially the first day which supports the reasoning of the underpricing of MTSI. Since only one other return is as high as the first day's return, it appears that the security underperforms as notes the -0.005% average return for the entire year. The standard deviation shows the volatility of the returns. The standard deviation of 3.364% can be interpreted as high with relation to price changes. This means that the stock's return can change 3.364% depending on market conditions. The variance also expands on the standard deviation in that this shows the variability of the stock returns around the mean value. The median value of 0% is the return in the middle that splits the sample in to two equal sizes. This value hints towards the performance of the stock after the issuing day. Half of the returns are less than 0% showing that the stock drops in value.

The value for kurtosis indicates that MTSI has excess kurtosis in its stock returns for the sample period. Normal kurtosis is calculated as 0 in Microsoft Excel. This excess kurtosis shows that the stock returns have a high chance of getting very large or small returns. These returns can be seen as outliers. This also demonstrates the volatility of holding this stock. The skewness reflects upon the fact that the sample stock returns are not symmetric. This -1.41 number shows that there are more returns to the left of the mean. Since the mean return is negative, this negative skewness is a bad indicator. The positive range shows the spread of the returns. The main reason why this is positive is because the returns on the first two days as well as one other big trading day boost the overall average. The worst daily return is -20.826%. Approximately 25% of the returns are under -1.519% while 75% of the returns are under 1.638%. These numbers also allow one to recognize the poor performance of MTSI.

Table 3: Descriptive Statistics for MTSI Index highlights the descriptive statistics for the index composed of MTSI and its key comparable companies. The sample period is once again from March 15, 2012 to March 15, 2013. As was done above, the stock prices that went into the index calculation were found on *yahoo. finance*. The daily return for each peer firm in the index was calculated. The daily returns were then summed together, as is illustrated in Equation 2 below.

$$\frac{\sum_{i=1}^{7} Ret_{it}}{7} \tag{2}$$

This allowed the appropriate statistics to be calculated so the MTSI Index was comparable to MTSI individually.

Table 3: Descriptive Statistics for MTSI Index

MTSI Index	
Mean	-0.003%
Median	0.036%
Standard Deviation	1.789%
Variance	0.032%
Kurtosis	0.31
Skewness	-0.11
Range	9.656%
Minimum	-4.697%
Maximum	4.959%
25^{th} quartile	-1.104%
75^{th} quartile	1.054%

The mean return for the index is -0.003%. This is better than the return for MTSI, showing that the MTSI Index has outperformed MTSI. The standard deviation of the index is 1.789%, which is lower than MTSI. This indicates that the index overall has less volatility in its returns as compared to MTSI. The median value of 0.036% is above the 0% value for MTSI. Half of the index's returns are greater than 0.036%, showing that overall the index was up more days than it was down.

The kurtosis value for the MTSI Index is low, especially compared to MTSI individually. The kurtosis value is 0.31 for the index. As was noted above, normal kurtosis is equal to 0 according to Microsoft Excel. Even though 0.31 shows excess kurtosis, it is not too excessive and there is a smaller chance that the index will fluctuate in value as compared to MTSI. The MTSI Index is skewed in the same direction as MTSI. Therefore, this number indicates that the MTSI Index has a preponderance of returns to the left of the mean. The skewness for the MTSI Index is lower than MTSI individually.

The one-year holding period return (HPR) was also calculated for MTSI and the benchmark index. This calculation gives a direct reference on the return an investor would have from the IPO date to a year later. Comparing this to the benchmark HPR will show if an investor

would have been better off investing in the index. Equation 1 was used for this calculation. The one-year HPR for MTSI was -20.83%. For the MTSI Index, the one-year HPR was -3.67%. In both situations, an investor would have lost money investing in either MTSI or the MTSI Index during the sample period. The loss is much greater with MTSI as compared to the index.

The last thing that is done with returns for MTSI and the MTSI Index is checking for any abnormal return that an investor would have obtained from investing in MTSI. Equation 3 below shows how this is calculated:

$$\text{Abnormal Return} = Ret_{MTSI} - Ret_{MTSI\ Index} \quad (3)$$

The abnormal return is equal to -17.160%. This is interpreted as bad because the investor obtained excessive negative return from investing in MTSI. Even though the negative return from the MTSI Index offset some of the return from MTSI individually, the value of -17.160% is a substantial loss.

Equation 4 shows the target price calculation on the IPO date. It is calculated as follows:

$$\text{Target Price} = F(\mu_{EV/EBITDA} \times EBITDA_{MTSI}) \quad (4)$$

Table 4: MTSI Comparable Company Analysis illustrates the metrics important for the comparable company analysis. All of the numerical variables found in this table are used in some form to calculate the target price. The trailing twelve month EBITDA for each company is divided by the number of shares outstanding to get the EBITDA per share. The target price calculation comes from equation 4. M/A-COM is in green to point out that this is the company in question.

Table 4: MTSI Comparable Company Analysis

Firm	Ticker	Market Cap	EV	EBITDA (millions)	EV/EBITDA	Shares Outstanding (millions)	EBITDA per share
Microsemi Corp	MSCC	2,015M	2.47B	221.23	11.16	91.27	2.42
Syworks Solutions	SWKS	4,174M	3.64B	383.73	9.49	191.98	2.00
Avago Technologies	AVGO	8,859M	7.30B	740.00	9.86	246.09	3.01
Hittite Microwave	HITT	1,936M	1.39B	119.34	11.65	31.55	3.78
Triquint Semiconductor	TQNT	751M	641.29M	67.03	9.57	160.88	0.42
RF Micro Devices	RFMD	1,393M	1.34B	41.59	32.22	279.59	0.15
MA-COM	MTSI	745M	580.17M	68.67	8.45	45.80	1.50
Industry Average		2,839M	2.48B	234.51	13.20	149.59	1.90
Target Price	19.79						
Issuing Price	19.00						

*data collected from Bloomberg

A target price of $19.79 is calculated for March 15, 2013 based on equation 4. This is higher than the issuing price of MTSI, which is expected. By looking at historical IPOs, it appears that the issuing firm majority of the time is underpriced. The literature review above gives the possible explanations for this. There is no set reason or explanation on why the stock price seems to be below this calculated price. A lagging global economy for the past few years may be one thing to blame. The most logical reason for the underpricing and undervalued company is because it serves as a way for investors to be compensated for taking on more risk by investing in an IPO (Brau and Fawcett, 2004).

5. Conclusion

Because of this experiment, there are two key analyses to be made about the phenomena of the underpricing of IPOs that leads to subsequent underperformance of the stock. First of all,

MTSI is underpriced. The comparable company analysis along with the comparison of returns back up this assertion. I believe this is because MTSI wants investors to invest in the company. By offering the company stock price at a discount, investors are getting compensated for taking on the extra risk.

The second point, with regards to underperformance, is that one year of stock returns and the comparison of these returns to the MTSI Index give important insight underperformance of the company in question. The negative abnormal return also shows that investing in MTSI would have been a poor decision. It has significantly underperformed its key competitors overall. Still, data will have be updated and collected for several years. This will provide a more valid interpretation on the underperformance factor due to the initial underpricing.

Further research will be done with regards to underpricing and underperformance. Continuing to compile statistics on stock returns for MTSI and the MTSI Index will continue to show value towards performance. Another thing that can be done is revising the comparable company analysis when necessary. It is always important to stay up-to-date with current market conditions and company specific events. These things can positively or adversely affect the estimated value of MTSI. Further expanding the sample size of comparable companies along with adding other companies from the semiconductor industry that have a public stock offering in the future will also bring more empirical data into the experiment. This will be very useful in further evaluating the hypothesis.

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